

FIELD OF THE PRESENT INVENTION

The present invention relates to uninterruptible power supply (UPS) device, and more specifically to uninterruptible power supply socket adapting 6 volt battery.

BACKGROUND OF THE PRESENT INVENTION

Conventional UPS device used 12 volt battery as main power supply to cope with large power consumption required by ICs in the circuits of switching power supply and inverter. Due to this large power consumption, the sizes of transformers, ICs and other components of conventional UPS devices are large, therefore, conventional UPS device has drawbacks of high cost, difficult maintenance and not portable.

SUMMARY OF THE PRESENT INVENTION

The UPS socket of the present invention uses a central processor unit (CPU) and a rechargeable circuit as to boost its power efficiency. therefore, the present invention can solve the drawbacks of prior art mentioned above.

A feature of the UPS socket of the present invention is to use 6 volt battery to provide the power supply for the equipment during the interruption of city electricity comprising a power circuit board, a control circuit board and a surge protection circuit board.

Another feature of the present invention is the size of its configuration is similar to commercial extension socket, and its size is much smaller than conventional UPS, and is still capable of providing 3 sets of surge protection receptacles and 3 sets of UPS receptacle on the surface panel of said UPS socket. When the city electricity is interrupted, the function of CPU controls may automatically save the application and data and then close the program to reduce power consumption. If the city electricity can't restore within a few minutes and there is no substitute emergency power available, the CPU will automatically shut down the operating system of the computer to avoid losing data in the process.

Another feature of the present invention is its compact modular construction, it will save assembly and maintenance time, so as to reduce cost and improve quality of the UPS socket

In a preferred embodiment of the present invention, the construction members of the present invention comprising a face panel, an upper cover, a socket member, a wiring insulation plate, a battery set, a print circuit board assembly, a detachable lower cover, a power cord lead and several components, wherein said upper and lower covers were connected via several electric conductive wires.

The UPS socket of the present invention in general contains a print circuit board assembly consisted of a power circuit board, a control circuit board and a surge protection circuit board, wherein said power circuit board includes an AC/DC rectifier, a DC/DC inverter, a switch controller, a rechargeable charger, a DC/DC direct current bus booster, an output inverter and a computer transmission interface circuit; said control circuit board includes a city electricity monitor, a charge controller, a DC/DC controller,

an output inverter driver and a CPU; and said surge protector includes a set of surge suppression circuits.

These and other features and advantages of the various aspects of the present invention will become more apparent upon reading the following description of a preferred exemplified embodiment of the present invention and upon reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a block diagram of the UPS socket of the present invention;

FIG. 2 illustrates the construction members of the UPS socket of the present invention;

FIG. 3 illustrates the upper and lower covers with relevant components associated in the UPS socket of the present invention ;

FIG. 4 illustrates the external views of the UPS socket of the present invention;

Fig. 5 illustrates the circuit diagram of power circuit board of the UPS socket of the present invention;

Fig. 6 illustrates the circuit diagram of control circuit board of the UPS socket of the present invention; and

Fig. 7 illustrates the circuit diagram of surge protection circuit board of the UPS socket of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In fig. 1, the block diagram of the UPS socket of the present invention includes a power circuit board [1] 2f-1, a control circuit board [2] 2f-2 and a surge protection circuit board [3] 2f-3; the fig. 1 simply illustrates the connection relations among the circuit boards, the detailed description of its installation will be given in fig. 2 and fig. 3 respectively.

In fig. 2, the construction members of UPS socket of the present invention consists of a front panel 2a viewed from bottom, including a name plate 1, 3 sets of bypass UPS receptacle 2, one of which is surge protection receptacle 2-1, 3 sets of UPS receptacle, one of which is surge protection receptacle 3-1, an indicator lamp 4, a power switch 5, an upper cover 2b1, a power breaker 2b2, a receptacle member 2b4, a wiring insulation plate 2b5, a battery set 2e, a print circuit board assembly 2f and a detachable lower cover 2g consisted of a power circuit board [[1]] 2f-1, a control circuit board[[2]] 2f-2 and a surge protection circuit board [[3]] 2f-3.

As shown in Fig. 2, an uninterruptible power supply socket comprising an upper cover 3a, a lower cover 3b consisting of a first part 2g-1 and a second part 2g-2, a battery 2e, a power circuit board 2f-1, a control circuit board 2f-2 and a surge protection circuit board 2f-3, wherein the first part 2g-1 of the lower cover 2g forming a first cavity with first half of the upper cover 2b1, the second part 2g-2 of the lower cover 2g forming a second cavity with second half of the upper cover 2b-1, wherein said control circuit board 2f-2 and said surge protection board 2f-3 both erected on said power circuit board 2f-1 forming a U shape circuit board assembly 2f mounted in the first cavity.

As shown in fig 2., the lower cover 2g and the upper cover 2b1 are thus constructed to form an elliptical box, and the first part 2g-1 of the lower cover 2g is combined with the second part 2g-2 of the lower cover 2g.

In fig. 3, it illustrates the upper and lower covers with its relevant components positions in the UPS socket of the present invention; wherein the upper cover 3a includes a battery 1 mounting space, a wiring isolation plate 2, and a power breaker 3, fig. 3 lower part is shown a lower cover 3b, includes a battery mounting space, a print circuit board assembly 2, including a power circuit board 2-1, a control circuit board 2-2 and a surge protection circuit board 2-3, and a power breaker with power cord lead 3.

In fig. 4, it illustrates external views of the UPS socket of the present invention, the upper part 4a of fig. 4 is shown a front view of the UPS socket of the present invention, two rows of receptacle are shown in the middle, the upper side has 3 sets of bypass receptacle 2-2, the lower side has 3 sets of UPS receptacle, at right side is a power indicator lamp 4, a power switch 5, and a power cord lead 3, at left side is a template 1 ; in the middle part of the fig. 4 is shown a rear view 4b of the UPS socket of the present invention; the lower part of the fig. 4 is shown a lower cover in its separate status 4c, including a detachable battery cover 1, a detachable cover 2, a power cord lead 3, an upper cover 4, and 3 sets of communication interface receptacle 5.

In fig. 5, 6 and 7, except a rechargeable circuit in the fig. 5 was filed in a separate application by the applicant, the rest of circuits are known in the field, thus no further descriptions are prepared herein.

Various modifications of the embodiments specifically illustrated and described herein will be apparent to those skilled in the art, particularly in light of the teaching of this invention. The present invention should not be construed as limited to the specific form and examples as shown and described, but instead is set forth the following claims.